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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/571,315	10/13/2006	Tsutomu Atsuki	026390-00035	8359

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ARENT FOX LLP
1050 CONNECTICUT AVENUE, N.W.
SUITE 400
WASHINGTON, DC 20036

EXAMINER	
LE, HOA T	

ART UNIT	PAPER NUMBER
1794	

NOTIFICATION DATE	DELIVERY MODE
12/15/2008	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/571,315	ATSUKI ET AL.	
	Examiner	Art Unit	
	H. (Holly) T. Le	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-20* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 March 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *March 2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In claim 1, "each metal particle" has no clear antecedent basis. In addition, it's not clear whether the claim describes a dispersion containing metal nanoparticles or a core-shell nanoparticles.

In claim 9, the phrase "a fatty acid as set forth in claim 4" is indefinite because the subject matter of the claim 4 is metal nanoparticles, not fatty acid.

In claim 13, line 2, "the dispersion" has no clear antecedent basis. No dispersion is recited in claim 9. It's unclear what is the dispersant in the "dispersion" as described in the claim.

Claim 15 suffers the same deficiency of claim 13.

Claim 17 is confusing. It is suggested that each dispersion be preceded with a number or letter such as (1), (2) and so on, or (a), (b), and so on, for clarity.

In claims 17-19, "thin" renders the claim indefinite. The term "thin" is not defined by the claim; the specification does not provide a standard for ascertaining the requisite degree; and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Other claims are deemed indefinite in view of their dependency on claim 1, 9 or claim 13.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-5, 8, 9 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by Nagasawa et al (US 6,358,611).

Claim 1: Nagasawa teaches a metal nanoparticles comprising a metal core and an organic metal compound surrounding the core. See col. 2, lines 7-13.

Claim 2: The metal component comprises precious metals, transition metals and their alloys. See col. 2, lines 50-58.

Claims 3-5: the organic component comprises fatty acids (col. 2, lines 29-43);

Claim 8: The particle is from 1-100 nm (col. 2, lines 7-13).

Claim 9: The process for producing the nanoparticles of claim 1 wherein the organic metal compound comprises a fatty acid. See col. 2, lines 29-44.

Claim 12: The particle is from 1-100 nm (col. 2, lines 7-13).

5. Claims 1-9 and 12 are rejected under 35 U.S.C. 102(a) or 102(b) as being anticipated by Komatsu et al (US 6,730,400 or WO 0076699).[1]

Examiner's Note: WO 0076699 has been cited by Applicant. Because the specfiication of the US 6,730,400 and WO 0086699 are substantially the same, only US 6,730,400 is used in the citations for the rejection.

Claim 1: Komatsu teaches composite metal particle comprising a metal core and an organic metal compound surrounding the core. See Komatsu, claim 1.

Claim 2: The metals are chosen from precious metals and transition metals (Komatsu, paragraph bridging columns 2 and 3).

Claims 3-5: See col. 7, lines 5-14.

Claims 6-7: See col. 7, lines 65-67.

Claim 8: The particle is from 1 to 100 nm (Komatsu, claim 1).

Claim 9: The method involves dissolving an organic metal compound and a metal particle precursor (i.e. metal complex) in a solvent. See Komatsu, col. 5, line 59 to col. 6, line 9 and col. 6, lines 26-39 or claim 6. The solvent is non-polar. See col. 8, lines 18-24. The organic metal compound comprises a fatty acid (col. 7, lines 5-14) or a

[1] Currently, 102(b) applies as the translation copy of the priority document has not been received; when the certified translation copy is received,102(a) applies.

mixture of fatty acid and a metal complex of an amine (col. 6, lines 26-39 and col. 7, lines 65-67). A reducing agent is added to the resulting liquid (col. 8, lines 42-46).

Claim 12: See col. 2, lines 51-57 and also claim 1.

6. Claims 1-9 and 12-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Matsuba et al (US 7,081,214).

Claim 1: Matsuba teaches composite metal particle comprising a metal core and an organic metal compound surrounding the core. See col. 5, lines 17-25.

Claim 2: See col. 20, lines 30-37.

Claims 3-5: See col. 13, lines 1-16.

Claims 6-7: See col. 10, lines 44-67.

Claim 8: See col. 5, lines 17-19.

Claim 9: The method involves dissolving an organic metal compound comprising a fatty acid in a solvent (col. 13, lines 1-16) and/or an aliphatic amine (col. 13, lines 1-6). See also, col. 22, lines 13-58.

Claim 12: See col. 20, lines 30-37.

Claims 13-20: Dispersions and pastes of the metal particles are taught at col. 26, lines 45-62 and Examples 1-1 and 1-2 and 2-1 to 2-3.

7. Claims 1-12 are rejected under 35 U.S.C. 102(e) as being anticipated by Peng et al (US 7,160,525).

Claim 1: Peng teaches composite metal particle comprising a metal core and an organic metal compound surrounding the core. See col. 5, lines 17-25.

Claim 2: See col. 3, lines 18-20

Claims 3-7: See col. 4, line 63 to col. 5, line 7 where fatty acids and aliphatic amines are disclosed as the organic component for the organic metal compound.

Claim 8: See col. 3, lines 20-25.

Claim 9: The method involves dissolving an organic metal compound comprising a fatty acid in a non-polar solvent and adding a reducing agent to the mixture. See col. 4, lines 37-50.

Claim 12: See col. 3, lines 20-25.

Claim Rejections - 35 USC § 103

8. Claims 10, 11 and 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over (1) Nagasawa et al (US 6,358,611); (2) Komatsu et al (US 6,730,400 or WO 0076699; or (3) Peng et al (US 7,160,525) as applied to claims 1-9 and 12 above, and further in view of Toshihiro et al, JP 2002-121,606 ("JP'606").[2]

With regard to claims 10-11, hydrogen gas, carbon monoxide and gases containing hydrogen and CO are known as reducing gases in the art. Therefore, one of ordinary skill in the art would have chosen to introduce such gas during the reduction treatment to promote reduction.

[2] Cited by Applicant.

With regard to claims 13-20, Nagasawa, Komatsu, and Peng each teaches the claimed invention as described in claims 1-9 and 12 as discussed above. JP'606 teaches a dispersion of metal nanoparticles having particle diameter of 1 to 100nm in a dispersant comprising a concentration of 80wt% of the metal particles; and application of such dispersion in the formation of metal wire or film. See JP'606 paragraph [0001] and [0012]. Therefore, one of ordinary skill in the art would have found it obvious to apply the nanoparticles taught by Nagasawa, Komatsu, Matsuba, or Peng in forming a metal-containing dispersion and metal wire or film as taught by JP'606.

9. Claims 10-11 and 13-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Matsuba et al (US 7,081,214) as applied to claims 1-12 above, and further in view of the discussion below.

With regard to claims 10-11, hydrogen gas, carbon monoxide and gases containing hydrogen and CO are known as reducing gases in the art. Therefore, one of ordinary skill in the art would have been motivated to introduce such gas during the reduction treatment to promote reduction.

With regard to claims 13-20, Matsuba discloses the claimed invention as discussed above. With regard to the concentration of the metal particles in the dispersion, with such a vast range of concentration as claimed, one of ordinary skill in the art would have easily arrived at the concentration through obvious routine experimentation.

10. Other references are cited as art of interest.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to H. (Holly) T. Le whose telephone number is 571-272-1511. The examiner can normally be reached on 12:30 a.m. to 9:00 p.m. (EST), Mondays to Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rena Dye can be reached on 571-272-3186. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/H. (Holly) T. Le/
Primary Examiner, Art Unit 1794

December 5, 2008